

venous, as the case might be—a state of things which would necessarily be corrected in the very next pulsation. The heart's action therefore became auxiliary to the action of the capillaries. The placenta of the fœtus accomplished for it precisely what the lungs did for the adult. The difficulty of explaining how the circulation might have been carried on in the acardiac fœtus was materially lessened by these considerations.

Dr. Dickinson, in reply to the remarks of Mr. Savory, allowed the possible existence of a force which promoted the circulation of the blood independently of the action of the heart. In vegetables the circulation was carried on by this alone; but the higher in the animal scale, the more active the circulation and the more necessary the heart. It could not be supposed that in the human fœtus the circulation could be maintained without this organ. It was almost proved that the circulation depended on the heart of the other twin by the fact that in every case of acardiac monstrosity not only was the monster a twin, but it was attached to the same placenta as served for the other child. If the circulation depended on forces within its own body, there could be no reason why it should not be carried on without this connection.—*Lancet*, May 23, 1863.

## MATERIA MEDICA AND PHARMACY.

4. *Effect of Tobacco Smoking upon Pulsation.*—DR. EDW. SMITH relates (*Lancet*, March 14, 1863) some experiments to determine the effect of tobacco smoking upon the rapidity of the pulse. These experiments are limited, but Dr. S. thinks that they suffice “to show that tobacco acts variously upon different persons, and that there are those in whom it increases the action of the heart in an important degree. This difference must be sought for in the mode of smoking, the quantity of tobacco consumed in a given time, the reputed strength of the tobacco, and the habits and temperament of the smoker; and upon these questions I would offer an observation or two, with a view to further inquiry.

“1. *The mode of smoking.*—I do not smoke, but I have very carefully tested the mode of smoking, and agree with those who affirm that in ordinary circumstances the tobacco smoke is not mixed with the air in inspiration and carried into the lungs. The position of the throat is that which occurs in ordinary breathing through the nose—viz., the soft palate falls down, and the tongue is raised, so as to cut off the communication between the mouth and the throat. The two acts do not necessarily take place simultaneously. Whenever, as by an accident, a little tobacco smoke is inhaled, the smoker is at once conscious of irritation or choking in the throat, probably followed by cough. If any one have doubt upon this matter, let him endeavour to smoke with the nostrils closed and he will find the act impossible; but it may yet be possible that in cases in which affections of the throat are found in smokers the act may be performed carelessly, or from some cause the tobacco-smoke may frequently touch the pharynx. If the tobacco-smoke be not thus taken into the system, in what manner are the effects upon the pulse induced? It must be chiefly through solution in the saliva, which is then partly absorbed by the absorbent vessels, and partly swallowed, and thus introduced into the system. Whether frequent spitting would prevent or lessen the action needs to be further tested, but within limits it is probable that it would lessen it.

“2. *The quantity of tobacco consumed in a given time.*—In pursuing the inquiry it will be important to aim at uniformity in this respect, and direct that the act be nearly constantly performed so that the smoke may not escape from the open bowl, and that an ordinary bowlful be consumed in 20 minutes. Although it did not appear from Mr. D——'s experiments that rapidity of smoking varied the result, we must remember that the effect of the tobacco upon the pulse had then already been attained, and he is conscious that rapid smoking would make him ill, whilst smoking at the ordinary rate would be agreeable.

"3. *The strength of the tobacco.*—Smokers speak of strength of tobacco in two senses. Those accustomed to the fancy kinds of tobacco assert that the common shag or Virginian tobacco would make them ill, and also that certain tobaccos taste hot in the mouth. These two statements may probably refer to the two principal constituents of the tobacco—viz., the narcotine, which is so powerful a poison, and the empyreumatic oil, which would cause irritation of the mucous membrane of the mouth; and it is certain that, whilst the wholesale dealers in tobacco find many of the present fancy tobaccos in the same hogshcad produced from the same soil, there are also diversities in the constituents of the tobacco, grown under different climates, upon different soils, and prepared for the market in different manners. I believe that with smokers in general the idea of strength is much more the effect upon the mouth than upon the general system. In the experiments referred to, the strong Bristol bird's eye had no more effect upon the pulse than the so called milder forms. It is probable that smoking is very much a gratification rather of the palate than of the sensorium.

"4. *Habits and temperament.*—Both Mr. D—— and Dr. H—— were well inured smokers; but, as we have seen, the effect upon them was well marked. Dr. H—— is beyond comparison more sensitive in temperament than Mr. D——, and yet the effect of tobacco upon him was much less. Hence, in reference to this action upon the pulse, neither of these conditions can be accepted as grounds for variation in the effect.

"I have referred in this paper to the action upon the pulse only, and not to the supposed sedative action upon the system generally, both because such an action is quite new to us, and because it is the only one of the two which can be well defined; but I do not for a moment wish to be understood to mean that this general action does not exist. It is, however, now impossible to look upon a dreamy state, a semi-narcotism, as the essential one of tobacco smoking; for when the pulse is excited in the manner now shown, the action is one of stimulation as perfect to appearance as if induced by food, and as fitted temporarily, and under proper conditions of food, to excite the activity of the brain or other organs. If the experience of literary men has shown that in some the necessary activity of brain is obtained only after the exhibition of strong wines and spirits, it may now be proved that in certain persons tobacco-smoking produces a similar result, and by quickening the pulse, and in a certain degree filling it also, it may excite all vital actions. In such a state of atonicity of system, when tobacco produces the effect upon the heart already described, it is easy to believe it a remediable agent of great value. But if there be not a state of atonicity, but on the other hand a tendency to fulness of system, what so certain as that this important action upon the heart must lead to disturbed sleep and conditions tending to apoplexy?"

5. *On Cinchonine as a Substitute for Quinine.*—Dr. W. F. DANIELL, of Kingston, Jamaica, writes to Professor Bentley as follows:—

"In the *Pharmaceutical Journal* for February last, I observe an interesting paper by Mr. Joseph Ince, recommending the salts of cinchonine in lieu of those of quinine; now so far as my experience extends with reference to the employment of cinchonine in the treatment of febrile and other miasmatic diseases of Western Africa, it has proved a decided failure, owing to the headache which has uniformly attended its administration. When I was in medical charge of the troops in Sierra Leone, a large quantity of cinchonine was furnished to the hospital with the view of testing its remedial properties, and also of ascertaining whether it would not answer as an economical substitute for quinine. It was therefore given to both European and negro patients who were suffering under the milder forms of remittent and intermittent fevers, and free from any local congestions, in the ordinary doses in which the sulphate of quinine was used. The results of the trial were, however, of such an unsatisfactory character, from the pain and cerebral congestion induced, that the medicine had to be discontinued. It was subsequently combined with calomel and morphia, but without any sensible diminution of the cerebral disturbance. When conjoined with the latter, delirium sometimes sets in, which was only